

REMARKS/ARGUMENTS

In response to the previous office action, Applicants argued e.g.:

(1) Wakai does not teach the transparent insulating film 108 as being **photosensitive**;

(2) Shimada's dielectric constant of 3.4 for photosensitive acrylic resin is not applicable to Wakai in view of unjustified **expansion** of the limited Wakai teaching, and in view of ineligible date;

(3) Misawa's **passivation layer** 55 is different from the claimed interlayer insulating film, and thus its thickness is irrelevant;

(4) The claimed lower transmittance for blue light than for green and red light is not obvious.

Despite Applicants' earlier contentions, the present office action makes essentially similar assertions as in the previous office action, and contends further that "the transparent insulating film has to be photosensitive in order for etching to occur" (see, e.g., page 3, lines 1-2 and lines 14-15 of the office action). Applicants vigorously disagree with this contention, and again reiterate other deficiencies in the rejection, as explained below.

Photosensitivity Not Taught

Wakai only discloses that a transparent insulating film 108 is formed of an organic insulating film of polyimide, an organic insulating film of acrylic resin; or an inorganic insulating film of SiO₂, without any teaching that the material is photosensitive. Wakai simply teaches that Wakai's through hole 109 is formed in the transparent insulating film

108 above the source electrode 107 by etching (see column 6, lines 25-37 of Wakai). There is no teaching or any suggestion in Wakai that could be used to infer the transparent insulting film 108 is photosensitive.

The assertion of the Office that the transparent insulating film 108 has to be photosensitive in order to be etched is entirely erroneous. Indeed, there is nothing in the record from which the person skilled in the art at the time of Wakai would infer that anything other than a non-photosensitive acrylic resin would be used. Specifically, the person skilled in the art would infer from the record and Wakai that a non-photosensitive acrylic resin would be used, that a process would be utilized including such steps as applying a predetermined resist on the resin layer, and after exposure, forming the contact hole by selectively removing the resin using an appropriate removal technique, such as dry etching, plasma etching, or the like.

Other than hindsight, there is no basis in Wakai or elsewhere in the present record to establish that the contact hole would be established in any other way than through a non-photosensitive layer. And even with the advantage of hindsight today, the person skilled in the art would have to admit that Wakai is susceptible of an interpretation that non-photosensitive acrylic resin would be used, negating the allegation of the office action that the Wakai transparent insulating film *has to be* photosensitive.

Examples evidence of etching a contact hole thorough an insulation film formed of non-photosensitive resin can be found in the Japanese patent publications JP 59-49580 and JP 63-279228. Copies of Japanese patent publications JP 59-49580 and JP 63-279228 and English language translations thereof are submitted with this Request for Reconsideration. As yet an additional example of evidence, please refer to, for example, column 3, lines 51-61 of US Patent 6,262,436, where it is described (with reference to Figure 2 of US Patent 6,252,436) that, when a photosensitive resin is used to form layer

11, a contact hole can be made at the same time as the development; and when a non-photosensitive resin is used, it is necessary to form a hole using a dry-etching apparatus after the resin is fully cured.

The above evidence examples, among others, shows that one cannot baldly conclude (from Wakai's simply statement that the insulating film 108 is being etched) that Wakai's insulating film has to be photosensitive. There is no explicit teaching in Wakai that the insulating film 108 is photosensitive, nor is there any teaching or basis in the record for inferring such conclusion.

Shimada is Ineligible

The office action once again alleges that the date of Shimada is irrelevant, since Shimada is used to show scientific fact that the acrylic resin used in Wakai inherently has a dielectric constant of 3.4. The office action has not addressed Applicants' previously submitted arguments regarding the unjustified expansion of the limited Wakai teaching.

As already established above, there is no basis to conclude that Wakai has a photosensitive-type acrylic resin, so that the use of Shimada to teach the dielectric constant of a specific "photosensitive acrylic resin" as an inherent teaching of the dielectric constant of the "acrylic resin" of Wakai is not proper.

Misawa Passivation Layer

The office action appears to again rely on the thickness of Misawa's passivation layer 85 as the claimed thickness of the insulating film. The office action does not provide any reasoning addressing Applicants' previously submitted arguments.

In the above regard, Applicants' reiterate that Misawa states that his passivation film 85 has a thickness "greater than a predetermined value of about 1 μm to insure a wet-proof layer. But the picture element electrode 94 of Misawa appears to be under Misawa's passivation film 85, not above. In fact, passivation film 85 of Misawa is formed over the entire active matrix substrate and then removed from all except the driver portions, i.e., formed over the picture element electrode 94 (please see, e.g., Figures 3A and 38, and col. 6, line 35 to col. 7, line 52 of Misawa). Quite differently, Applicants pertinent claims recite that the "thickness of the transparent colorless interlayer organic insulating film provides a reduced capacitance between said pixel electrode and said gate line or source line" (please see, e.g., independent claim 1). Moreover, Misawa's passivation film 85 does not appear to be planarized (see dependent claims 35, 44, and 53, for example). Therefore, Misawa's passivation film 85 is not analogous to the interlayer insulation film of Applicants' claims, and accordingly that the thickness of Misawa's passivation film 85 is immaterial and would not suggest a thickness of 1.5 μm or more for Wakai's transparent insulating film 108.

Lower Transmittance for Blue Light

Paragraph [0090] of the Applicant's publication 2001/0002857 cited by the office action does not provide any explicit support for whatever position the Office is taking in the third paragraph of page 3 of the office action. The second sentence of the confusing paragraph of page 3 of the office action appears to state that Wakai does have the claimed dielectric constant of 3.4 to 3.8 and does have the claimed lower transmittance for blue light. Yet these observations contradict the earlier statement in the same office action (first full paragraph on page 3) that Wakai does not disclose (among other things) "... a dielectric constant of 3.4 to 3.8...and a spectral transmittance of the transparent interlayer organic insulating film has a lower transmittance for blue light than that for green and red light".

In connection with the lower transmittance for blue light, the Examiner refers to paragraph [0090] of the publication [2001/0002857] of Applicants' original patent application. That paragraph, reproduced below, does not seem to us to have any explicit support for whatever position the Examiner may be taking in the third paragraph of page 3 of the office action:

The acrylic resin constituting the interlayer insulating film 38 has a dielectric constant of 3.4 to 3.8 which is lower than that of an inorganic film (e.g., the dielectric constant of silicon nitride is 8) and a high transparency. Also, since the spin coating is employed, a thickness as large as 3 μm can be easily obtained. This reduces the capacitances between the gate line 22 and the pixel electrode 21 and between the source lines 23 and the pixel electrodes 21, lowering the time constant. As a result, the influence of the capacitances between the lines 22 and 23 and the pixel electrode 21 appearing on the display, such as crosstalk, can be reduced, and thus a good and bright display can be obtained.

Conclusion

In view of the foregoing and other considerations, all claims are deemed in condition for allowance, and a formal indication of allowability is earnestly solicited. But should the Examiner be of a contrary opinion, Applicants respectfully request that the Examiner explain in detail:

1. How it could be inescapably inferred, in view of Applicants' evidence to the contrary, that Wakai's acrylic resin has to be photosensitive;
2. Why the Shimada reference is eligible for consideration in view, e.g., of its later date;
3. Any rebuttal to Applicants' traversals that Misawa's passivation layer 85 is

not analogous;

4. Any rebuttal to Applicants' traversals regarding the deficiencies of record to teach or suggest the claimed dielectric constant of 3.4 to 3.8 and the claimed lower transmittance for blue light.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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